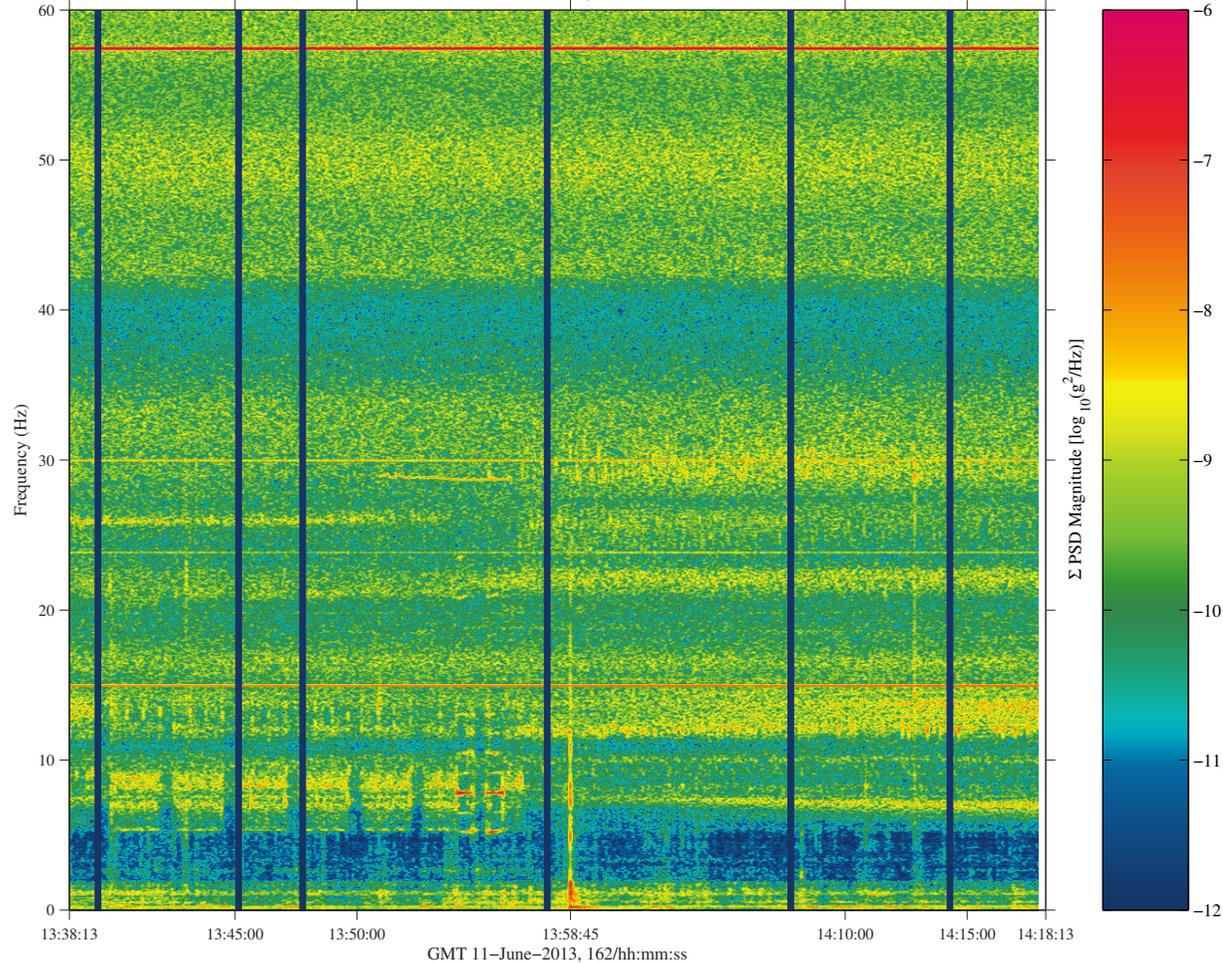


Progress 51P Undocking Qualify

sams2, 121105 at JPM1F5, ER4, Drawer 2:[466.80 -292.06 214.58]
 500.0000 sa/sec (200.00 Hz)
 $\Delta f = 0.061$ Hz, Nfft = 8192
 Temp. Res. = 2.384 sec, No = 7000

SAMS2, 121105, JPM1F5, ER4, Drawer 2, 200.0 Hz (500.0 s/sec)

Start GMT 11-June-2013, 162/13:38:13.002



Description	
Sensor	121f05 500 sa/sec (200 Hz)
Location	JPM1F5, ER4, Drawer 2
Plot Type	spectrogram (Σ); $f < 60$ Hz

Notes:

- The Progress 51P vehicle undocked from the ISS on GMT 11-June-2013 at about 13:59. Ancillary info on last page shows separation at 13:58:13, while SAMS measurements show the time to be closer to about 13:58:45.
- This spectrogram shows the transient impact of the contact event as a orange-to-red vertical streak at 13:58:45. Note the elevated structural excitation from this vehicle push-off as the horizontal red streak starting at time of separation.

Regime:	Vibratory
Category:	Vehicle
Source:	Progress 51P Undocking

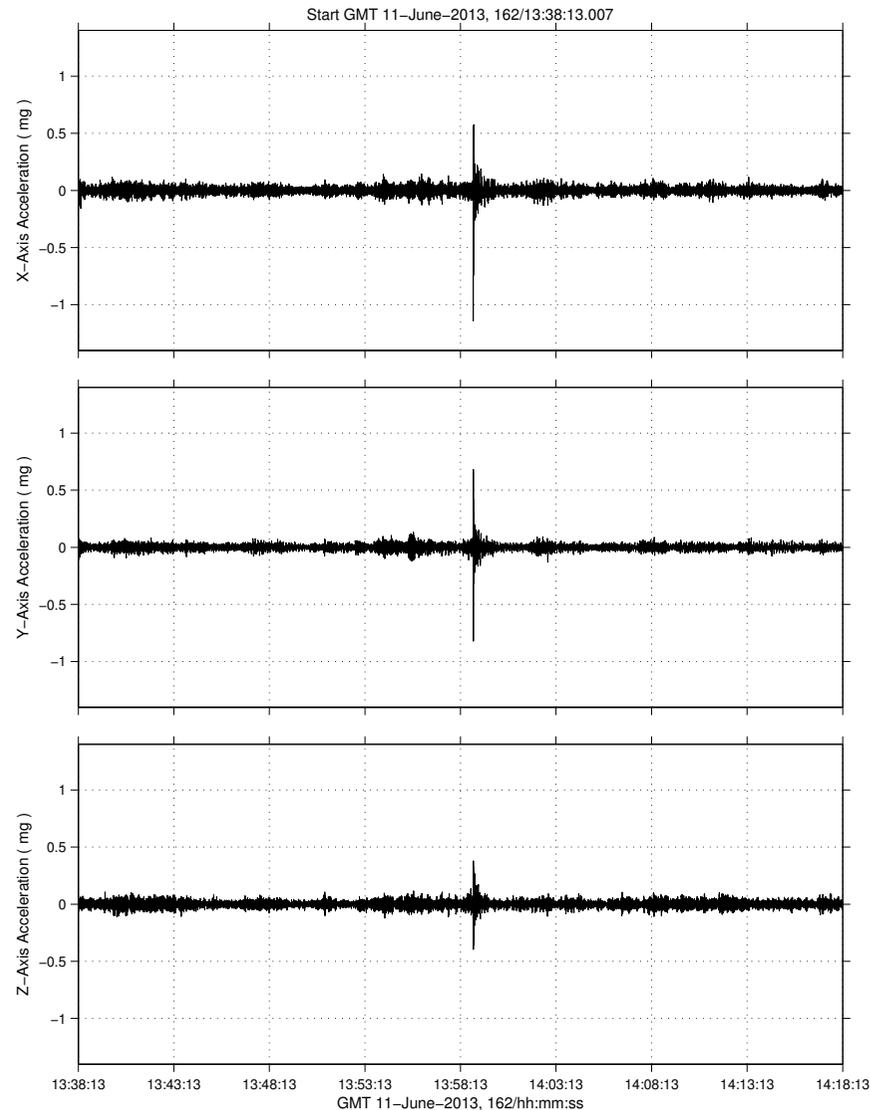


Progress 51P Undocking Quantify

sams2, 121f05006 at JPM1F5, ER4, Drawer 2:[466.80 -292.06 214.58]
142.0000 sa/sec (6.00 Hz)

SAMS2, 121f05006, JPM1F5, ER4, Drawer 2, 6.0 Hz (142.0 s/sec)

SSAnalysis[0.0 0.0 0.0]



Description	
Sensor	121f05 500 sa/sec (200 Hz)
Location	JPM1F5, ER4, Drawer 2
Plot Type	acceleration vs. time; $f < 6$ Hz

Notes:

- This 3-axis plot of acceleration versus time shows filtered SAMS measurements to reveal the primary impact of the Progress undocking event was registered on the X-axis with a peak amplitude value of just over 1 mg.
- In addition to the X-axis push-off impact, there was a noticeable amount of jostling on the Y-axis.

Regime:	Vibratory
Category:	Vehicle
Source:	Progress 51P Undocking



Progress 51P Undocking Ancillary Information

The Progress 51P vehicle (M-19M, No. 419) successfully **undocked** from the ISS Russian Segment Service Module (SM) aft docking port **at GMT 162/13:58:13** after the **command to open the vehicle hooks was issued at 162/13:56:00**. *The separation appeared smooth with no vibrations noted [this was likely from video capture...the previous pages of this handbook show that SAMS did register this event]*. Video from the Progress vehicle showed that the docking ring surface appeared nominal and free of debris. Telemetry indicated that the ACΦ-02 deployed post hook opening. Pre-undocking analysis by the CAMMP group indicated that during this antenna deployment a nominal clearance of 2 mm between the antennae and in other SM obstructions should have existed. The first separation burn [by the Progress vehicle?] was initiated at approximately 162/14:01:13 and was completed at approximately 162/14:01:28. Following several days of the Russian Radar-Progress experiment, the deorbit of the vehicle is planned for GMT 170 (June 19th, 2013) starting at approximately 7:52 a. m. Houston time. **No prop consumed during 51P Undocking. The undocking was conducted solely via CMGs.**



The Progress Cargo Ship Departing the ISS

